

Work Order ID 57329

April 6, 2010 1:31:49 PM

Page 1

Item ID: D315-668-012

Accept

Revision ID:

Item Name: Skidtube RH

Setup Start

Stop

Start Date: 06/04/2010 Start Qty: 1.00

Required Date: 16/04/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan: *H*Date: *10-11-06*

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D2904

Rev B

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD315-668-012

CHG 001

CHG 002

CP 10.05.28

1440/310

DART			
TRANSPORT CANADA APPROVAL # 09-89			
P/N	D315-668-012	CHG	CHG001
DESC.	Skidtube	STC	
LOT	B57329	STC	SR00848SE
MODEL	SA 315B	STC	
US PATENT # 5735484 CANADA FOREIGN PATENTS PENDING			
MADE IN CANADA			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 2

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Item Name: Skidtube RH

Stop



Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

110



Skidtubes

Skidtubes

0.00

Skidtubes

Memo

0.00

LANDING GEAR RESOURCE 1

1-Cut D2904b to length as per dwg D2904

2-Drill aft and fwd cap holes as per dwg D2904 using DT8025 jig
(DO NOT OPEN TO FINISH SIZE)3-Drill saddle holes (6 Deg) as per Dwg D2904 using DT8938A jig
(ENSURE THAT LOCATOR RING IS SET FOR RH TUBE)4-Drill GHW holes (3 Deg) as per Dwg D2904 using DT8938b jig
(ENSURE THAT LOCATOR RING IS SET FOR RH TUBE)5-Insert and cleco doublers and DT8938d in position. Transfer drill 256 holes
thru tube and doublers

6-Remove, identify batch # and orientation of doublers

7-C'sink rivet holes in tube 256 places as per dwg D2904 and deburr

8-Locate from saddle holes, drill wearplate holes using DT8994. Jig must be 1.7"
from aft end of tube (REF)9-Remove fwd and aft indexing ridges as per dwg D2904. Open fwd and aft cap
holes to finish size, scribe batch # at aft end of tube

10-Remove marks left from drill jig and deburr

DP 10-4-13

DP MB 10-04-14

DP 10-4-14

Pro

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

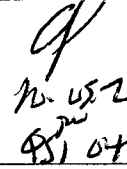
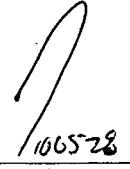
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

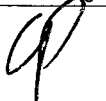
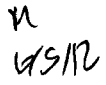



NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
10-05-28	100	SKIDTUBE IS NOW CHG OUT WITH NEW RIVETS				 10-05-28 JSI 042	 100528	

Part No: D315-668-012 PAR #: 10-032 Fault Category: _____ NCR: Yes (NO) DQA: J Date: 10.06.02
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR: <u>57329</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10.04.19	110	MS20001P403 RIVETS ARE BREAKING DURING INSTALLATION	 10.04.19 JSI 042	USE CR3212 CR3212-403 RIVETS. FSHEAR = 240lb FOR MS2000 FSHEAR = 664lb FOR CR3212	 10/5/12	 10/5/12	 10.04.19 JSI 042	 10/5/12

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 3

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Stop



Item Name: Skidtube RH

Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

S. 10/4/15

④

130



HandFinish

Hand Finishing

Chemical Conversion Coat per QSI005 4.1
HandFinishing

0.00

Memo

0.00

Chemical Conversion Coat Tube & Doublers

1

10/4/15

140



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

DP

10-4-15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM

Page 4

Item ID: D315-668-012

Accept

Revision ID:

Item Name: Skidtube RH

Start Date: 06/04/2010 Start Qty: 1.00

Required Date: 16/04/2010 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150



Skidtubes

Skidtubes

Skidtubes

Memo

LANDING GEAR RESOURCE 1

1-Remove alodine around X-bolt holes on doublers

2-Rivet doublers as per dwg D2904.(DO NOT INSTALL RIVETS AROUND X-BOLT HOLES AT THIS TIME)

3-Open X-bolt spacer holes to finish size as per dwg D2904.(DO NOT USE CUTTING FLUID)

4-C'sink and deburr X-bolt spacer holes and prepare for welding

5-Blow all chips from inside tube.

6-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting
Pick:

Qty ☐ Part Number ☐ Description ☐ Batch
A/R ☐ ☐ Sikaflex-291 ☐ M112429 ☐

Sikaflex expire date: 12/5/16

Start Time: 1:50 Date: 10/5/16

Fin Time: Date:

BE 10/04/19

RELEASED
POSITIVE RECALL
EFFECTIVE
RELEASED
POSITIVE RECALL
EFFECTIVE

POSITIVE RECALL
EFFECTIVE 10/24/19 AUTH
RELEASED 10/03/31 DATE CP

10/2/5/16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 5

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Item Name: Skidtube RH

Stop



Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

160

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

LANDING GEAR RESOURCE 1

1-Weld crossbolt spacers D2909as per Dwg. D2904and QS1 004.
For D2579 spacers, weld one side, pass Y" drill, weld other side, pass Y" drill
A/R□□□ Aluminum Rod *m112507*

BE 10/05/11

2-Grind welds as per Dwg D2909

3-Install remaining rivets around X-bolt spacers, use rivet shaver as necessary

11/10/5/12

4-Deburr, inspect tube for any visible scratches

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

S 10/05/12

10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 6

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Item Name: Skidtube RH

Stop



Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00	806512						
190 HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo	0.00 0.00							DBR 10-5-B
200 Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum 11114207 Memo POWDER COATING Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3 START TIME: 9:45AM OVEN TEMPERATURE: 220°C FINISH TIME: 9:45PM	0.00 0.00	2) 10/05/14						

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 7

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Item Name: Skidtube RH

Stop



Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

210

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

① BR 10-5-19

220

HandFinishing

0.00



HandFinish

Memo

0.00

Hand Finishing

HAND FINISHING RESOURCE #1

1-Install inserts & wearplates as per Dwg. D2904. Use a drop of Sikaflex on
insert holes before installing wearplates

A/R ☐ ☐ ☐ Sikaflex-291 ☐ 112429

Sikaflex expire date: 10/08

3-Inspect for foreign object per QSI 024

4-Install 2646 Aft & fwd Caps as per Dwg D2904 and seal with Sikaflex. Clean
excess adhesive

A/R ☐ ☐ ☐ Sikaflex-291 ☐ 112429

Sikaflex expire date: 10/08

5-Wing Walk as per Dwg D2904 and QSI 005

4.4

Batch:

114432

① BR 10-5-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57329

April 6, 2010 1:31:49 PM



Page 8

Item ID: D315-668-012

Accept



Setup Start



Revision ID:

Stop



Item Name: Skidtube RH

Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

230

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

8/10/05/20

②

Quality Control

240

Identify as per dwg & Stock Location: _____

0.00



Packaging

Memo

MCA

0.00

Packaging

Purified ②

250

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/05/31 ②
MF 10-5-27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 1

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH

Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2904B Skidtube, 315		Manufactured	No			110	Each	2.0000	1.0000			



B-57330

MB 10-04-13

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	2	
31826	1	
36926	1	

D2910



Doubler

Manufactured No

110 Each 44.0000 2.0000



2px MB

10-04-13 ✓

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST030	44	
36927	44	

D2911



Doubler

Manufactured No

110 Each 53.0000 2.0000



2px MB

10-04-13 ✓

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST030	53	
36928	53	

2x

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 2

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH

Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

MS27039-1-08 Purchased No 120 Each 1,958.000 54.0000



Screw

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST291	1958	
110552	44	
110835	1914	

D2912 Manufactured No 150 Each 40.0000 2.0000



Doubler

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST030	40	
36929	40	

MS20601-AD4W3 Purchased No 150 Each 228.0000 256.0000



Rivet

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST322	228	
111359	28	
113899	200	

CR 3212-4-03

m111359
m112314

110
73
95
NO
10-5-12
10-5-12

April 6, 2010 1:31:53 PM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 3

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH



Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2905 		Manufactured	No			160	Each	0.0000	1.0000			
Web, 315 Skidtube ALS4-1032-130 		Purchased	No			220	Each	40.0000	50.0000			
Insert												

357333

1 4/10/5/8

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST282

110511

40

40

50. BR 10-5-19

AN960JD10L



Washer

Purchased

No

220

Each

4,693.000

54.0000



Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST348

110985

4693

4693

54. BR 10-5-19

April 6, 2010 1:31:53 PM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 4

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH



Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2646  Aft Cap		Manufactured	No			220	Each	35.0000	2.0000 			

Warehouse Loc Qty Loc Code

Location

Main Warehouse

FP6 28

52663 ✓ 28

Main Warehouse

fp7 7

52663 7

D2648-3



Wearpad

Manufactured No

220 Each 40.0000 5.0000



Warehouse Loc Qty Loc Code

Location

OFFSHORE

FG 12

45316 12

Main Warehouse

FP17 28

52516 ✓ 28

2 BR 10-5-19

5 BR 10-5-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 5

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH


Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2656-13  Wearplate		Manufactured	No			220	Each	15.0000	1.0000			

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

FP20

12

55454

12

Main Warehouse

MEZZ

3

44158

3

D2656-33



Wearplate

Manufactured

No

220

Each

22.0000

1.0000

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

MEZZ

22

43806

9

46167

13

1 BL 10-5-19

1 BL 10-5-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 6, 2010 1:31:53 PM

Page 6

Work Order ID: 57329

Parent Item: D315-668-012

Parent Item Name: Skidtube RH


Comments: IPP Rev:A New Issue 07-04-12 JLM

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2907  Wearshoe		Manufactured	No			220	Each	32.0000	1.0000			

Warehouse Loc Qty Loc Code
Location

Main Warehouse


FP

14654

32

32

1 PR 10-519

D2909  Spacer, Lama		Manufactured	No			220	Each	129.0000	11.0000			
--	--	--------------	----	--	--	-----	------	----------	---------	--	--	--

Warehouse Loc Qty Loc Code
Location

Main Warehouse

LG

12947

14091

129

13

116

11 BE 14/05/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2904	Rev. B SHEET 1 OF 3
DATE 00.06.21		TITLE SA 315B SKIDTUBE ASSEMBLY SCALE NTS	
A	99.09.09	NEW ISSUE	
B	00.06.21	CHANGED ANGLES FOR HOLES	

PARTS LIST:

Qty -041	Qty -042	Part Number	Description
X		D2904-041	LH SKIDTUBE ASSEMBLY
	X	D2904-042	RH SKIDTUBE ASSEMBLY
2	2	D2646	CAP
4	4	D2648-3	WEARPAD
1	1	D2648-5	WEARPAD
1	1	D2656-13	WEARSHOE
1	1	D2656-33	WEARSHOE
1		D2904-1	SKIDTUBE
	1	D2904-2	SKIDTUBE
1	1	D2905	WEB
1	1	D2907	WEARSHOE
11	11	D2909	CROSS BOLT SPACER
2	2	D2910	SKIDTUBE DOUBLER
2	2	D2911	SKIDTUBE DOUBLER
2	2	D2912	SKIDTUBE DOUBLER
50	50	ALS7-1032-130 or AKS4-1032-130 or ALS4-1032-130 or ALS7-1032-130	INSERT
54	54	AN960JD10L	WASHER
256	256	MS20601AD4W3	RIVET
54	54	MS27039-1-08	SCREW

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 57329

10-4-03

RELEASED
00.07.01 *[Signature]*

Copyright © 1999 by DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2904	Rev. B SHEET 2 OF 3
DATE 00.06.21		TITLE SA 315B SKIDTUBE ASSEMBLY	SCALE 1:20

W/O 57329

GENERAL NOTES:

1. TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
2. MAKE D2904-1 AND D2904-2 FROM D2914 EXTRUSION (INITIAL LENGTH = 142.0).
3. DAMAGE TOLERANCE ON BENDING:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 7 INCHES ABOVE THE GROUND. NO GOUGING IS ACCEPTABLE IN THE FLAT PORTION OF THE TUBE. GOUGES UP TO 0.020 ARE ACCEPTABLE IN THE BENT PORTION OF THE TUBE. TUBE O.D. SHOULD BE 3.150 ± 0.010 IN THE FLAT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
4. ALL HOLES DRILLED ON CENTERLINES EXCEPT THOSE NOTED BY SECTION C-C.
5. DRILL #30 HOLES ($\varnothing 0.128$ REF) TO LINE UP WITH $\varnothing 0.128$ HOLES IN D2910/D2911/D2912 DOUBLERS. C'SINK $\varnothing 0.239 \times 100^\circ$.
6. BOND D2905 WEB INTO D2904-1 (OR D2904-2) OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
7. WELDING TO BE DONE PER DART QSI 004.
8. AFTER DRILLING, BENDING, AND INSTALLING WEB & DOUBLERS, PERFORM THE FOLLOWING FOR $\varnothing 0.500$ HOLES ONLY:
 - CHAMFER HOLE $0.050 \times 45^\circ$
 - INSERT D2909 SPACER (11 PLACES)
 - WELD INTO PLACE
 - GRIND FLUSH
 - DRILL OUT SPACER TO $\varnothing 0.406$
9. FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
 - MINIMUM YIELD TENSILE STRENGTH = 35 ksi
 - MINIMUM ULTIMATE TENSILE STRENGTH = 38 ksi
10. FINISH:
 - ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2905 WEB AND D2910/D2911/D2912 DOUBLERS.
 - POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
 - BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
11. DRILL $\varnothing 0.297$ FOR ALS7-1032-130 INSERT USING DT8395 BEFORE FINISH. INSTALL ALS7-1032-130 INSERTS AFTER FINISH.

RELEASED
00.04.01 *[Signature]*

Copyright © 2000 by DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

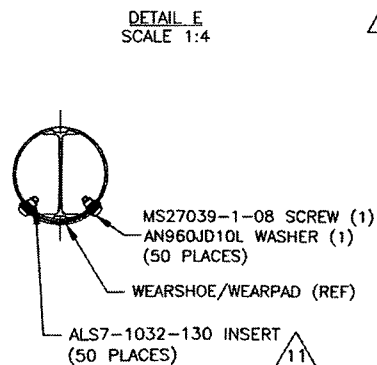
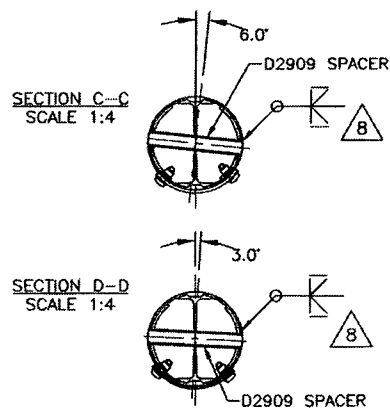
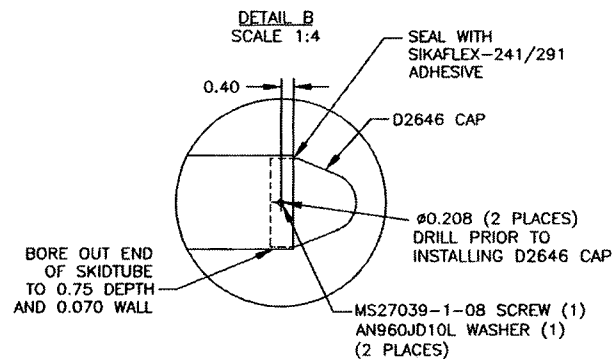
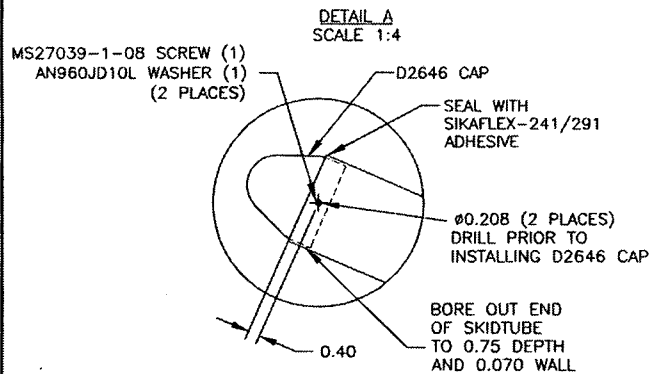
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

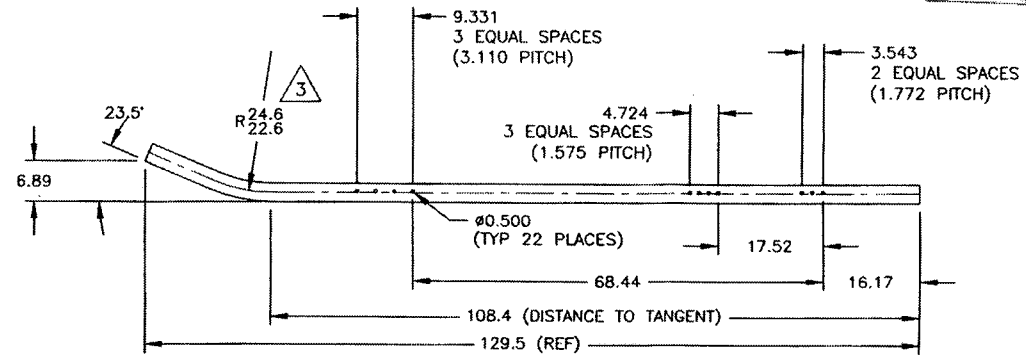
NOTE: Date & initial all entries

W/O 57329

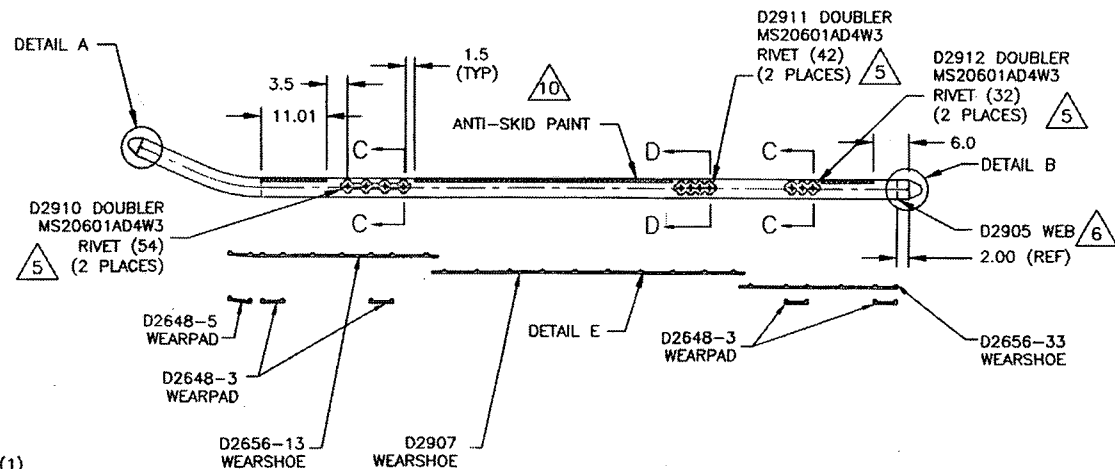
RELEASED
00 09 01



D2904-1 BENDING/DRILLING DETAIL (SHOWN)
D2904-2 BENDING/DRILLING DETAIL (OPPOSITE)



D2904-041 LH ASSEMBLY DETAIL (SHOWN)
D2904-042 RH ASSEMBLY (OPPOSITE)



COPYRIGHT © 2000 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL
AND IS SUPPLIED ON THE EXPRESS CONDITION
THAT IT IS NOT TO BE USED FOR ANY PURPOSE
OR COPIED OR COMMUNICATED TO ANY OTHER
PERSON WITHOUT WRITTEN PERMISSION FROM
DART AEROSPACE USA, INC.

DESIGN CP	DRAWN BY CP	DART DART AEROSPACE USA, INC. BELLINGHAM, WA	REV. B
CHECKED #	APPROVED #	DRAWING NO. D2904	SHEET 3 OF 3
DATE 00.06.21	TITLE SA 315B SKIDTUBE ASSEMBLY	SCALE 1:20	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 152

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Eliot
Job number: B36874
Part number: A315668011
Description: Skid tube (Lamin)
Welding Process: Tig[☒] Mig[]
Base material: Aluminum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David David Date of Test Coupon 08/04/24
Welder Barclay Eliot Date of Test Coupon 08/04/24

The above named individual is qualified in accordance with AWS D17.1.2001 to weld